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Filing Date	April 13, 2004
First Named Inventor	Robert G SANDERS
Art Unit	1723
Examiner Name	B. M. Kurtz
Attorney Docket Number	4021-0126PUS2

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
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  - [ ] Affidavits/declaration(s)
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Remarks

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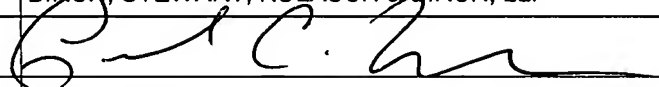
Signature			
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Date	October 22, 2007	Reg. No.	43,368

Docket No.: 4021-0126PUS2
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:
Robert G SANDERS

Application No.: 10/822,747

Confirmation No.: 4591

Filed: April 13, 2004

Art Unit: 1723

For: ATMOSPHERIC PLASMA TREATMENT OF MELTBLOWN FIBERS USED IN FILTRATION

Examiner: B. M. Kurtz
Primary Examiner: Krishnan S. Menon
Supervisory Patent Examiner: David R. Sample
Conferee: Romulo Delmendo

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a Reply Brief in response to the Examiner's Answer of August 22, 2007.

REMARKS

It is specifically noted that this Reply Brief is responsive only to new assertions made by the Examiner and the Appellant's full position in the appeal is set forth in Appellant's Brief on Appeal, dated August 22, 2007.

It will be noted from appealed claim 1 (see Appendix A of the Appeal Brief) that the improvement stated in *Jepson* form claim 1 is wherein the gaseous plasma consists essentially of air and at least one gas selected from the group consisting of He, Ar, Ne, N2, Kr and combinations thereof. The Examiner has now, apparently, realized that *Jepson* form claim 1, by the language "consists essentially of" and "consisting of" does not permit the gaseous plasma to include other gases which would materially affect the claimed method. In an effort to respond to that language, as has been previously raised in the Appeal Brief, the Examiner now alleges, at page 3 of the Examiner's Answer, that the Roth patent (USP 5,403,453) teaches a method where the gaseous plasma "consists essentially of air and helium or argon" and cites the Abstract, column 2, lines 34-41 and col. 4, lines 13-17. It is clear that the Abstract does not set forth such restriction, since the Abstract states, "or modified gas atmospheres **comprising** helium or argon (emphasis added), contrary to the Examiner's assertion. Column 2, lines 34-41 merely goes to specific details of the invention which relates to a **glow discharge plasma** process, and otherwise is not relevant to any restriction of claim scope.

Column 4, lines 13-17 refers to "**appropriate** gas **such as** air, helium or argon mixtures of helium or argon with oxygen or air or a mixture of argon and helium." This certainly does not close that process to those specific gases but shows those specific gases simply as examples.

Therefore, contrary to the Examiner's assertions, Roth does not teach that the gaseous plasma of that patent should be limited to certain gases, **only**.

In that same paragraph of the Examiner's Answer, the Examiner states that Jones et al (USP 6,953,544) teach a method of electrostatically charging thermoplastic fibers and cites

column 1, lines 17-20. Actually, in that cited portion, Jones et al. do not teach any process whatsoever for electrostatically charging thermoplastic fibers.

In regard to the Examiner's statement in connection with claim 3, the cited portion of Jones et al. (column 5, lines 16-28) in fact, teaches a wide number of processes for applying an electrical discharge **during a fluorination process**, as brought out in detail in the Appeal Brief. While an AC corona discharge plasma is among those recited in that portion of Jones et al., claim 3 goes to the use of a corona discharge to provide the electrostatically charged thermoplastic fibers. While that portion of Jones et al. is directed to an AC Corona discharge to produce a plasma, it is not clear whether the Examiner equates a plasma with a corona discharge or not, but clearly the two are quite different. In this specific case of Jones et al., the reference is merely teaching that plasma can be produced, among many other ways, by a corona discharge. In fact however, corona discharge plasma as recited in Jones et al. is quite different from the glow plasma required by Roth.

The Examiner misstates the Appellants invention at page 5, last sentence of the paragraph bridging pages 4 and 5. The Examiner states:

> "In other words the Appellant's invention is a combination of gaseous plasma treatment and corona discharge treatment."

From claim 1, it can be seen that the **claimed invention** is a treatment in a gaseous plasma at atmospheric pressure with the specific gases nominated in that claim and wherein the thermoplastic fibers are electrostatically charged. Those fibers may be electrostatically charged before treatment in the plasma or after treatment in the plasma, but it is not the combination thereof that is Appellant's broadest form of the invention. The broadest form of the invention is the treatment in the defined gaseous plasma at atmospheric pressure.

In the paragraph bridging pages 5 and 6 of the Examiner's Answer, the Examiner argues that it would be obvious to use the gaseous plasma treatment as taught by Roth followed by the

corona discharge method as taught by Jones et al., or vice versa. In combining these two references, the Examiner fails to recognize that the Jones et al. patent is specific to the use of **fluorinated** polymeric fibers that has at least about 25% atomic fluorine. This statement of the Examiner in the paragraph bridging pages 4 and 5 of the Answer does not elucidate how the Examiner would propose that one of ordinary skill in the art combine a reference dealing with glow discharge plasmas for treating fibers (see column 2, lines 6 - 29), with fluorinating a polymeric article as taught by Jones et al. (see the summary of the invention). The Examiner has offered no rational that one skilled in the art could follow to arrive at the conclusion which the Examiner now adopts.

In the first full paragraph at page 6 of the Examiner's Answer, the Examiner points to the statements in the Appeal Brief that the present invention does not produce any active species. The Examiner states that by definition "plasma contains active species: ions, electrons, etc." In one sense the Examiner is correct in this regard, since in the first paragraph at page 9 of the Appeal Brief, the first sentence should have, more accurately, stated that the present invention is not one that generates any active species, **in the sense of the active species taught by Roth**. The Examiner is correct in that plasma is an ionized gas that conducts electricity and ranges from welding torches to fluorescent lights. A fluorescent light bulb, for instance, contains a low pressure glow discharge whereas a torch forms an arch between the electrodes resulting in complete ionization of the gas and at temperatures in excess of 4000°C. If one therefore construes the term "active species" broadly, the Examiner is correct. But Roth is not concerned with plasmas **in general**, but in **specific** plasmas. These specific plasmas are outlined in the invention summary of that patent and, among others, that summary teaches establishing an electric field **between metallic plate electrodes** to break down the gases used by specifically choosing the RF frequency in the right range as discussed therein, to produce the **glow discharge plasma** where **nitrous oxide** (note the gases of present claim 1), helium or argon and air are recommended when processing **polymer film** to produce the web with desired surface characteristics and wetability.

In connection with the description of the **prior art**, Roth state at column 1, lines 45-65 that the prior art has used glow discharge plasmas that generate active species which may include photons, metastables, individual atoms, free radicals, molecular fragments, monomers, electrons and ions. These are, indeed, quite active species particularly such as **individual atoms**, **molecular fragments**, monomers, and the like. The point is that, while very broadly stated, active species must be in the plasma of the present invention, since any plasma that does not contain ions would not carry an electrical charge. The active species intended to be generated by Roth are not at all species that may be in the present process, if indeed, there are any active species, other than required ions to produce a plasma.

The Appellant's, in fact, do not know what might be in the plasma of the invention, but the specification at paragraph [0023] - [0027] speculates on possibilities that lead to the present improvement. It is clear that the present plasma does not anticipate the use of any "active species" **of the nature described by Roth**.

Finally, it is believed to be useful in this Appeal, that terminology be clear. In this regard, the common dictionary definition for a "corona discharge" is an electrical discharge characterized by a corona and occurring when one of two electrodes in a gas has a shape causing the electrical field at its surface to be significantly greater than between the electrodes. A coronal discharge, among others, may be used to produce plasma. But plasma, itself, is simply ionized gas (by whatever method) that conducts electricity.

CONCLUSION

It is believed that the rejections of record should be reversed by the Board of Patent Appeals and Interferences for the reasons stated in the Appellants Brief. The Examiner's Answer does not set forth any substantial reason for negating the reasons for reversal set forth in the Appellant's Brief, as demonstrated by this Reply Brief. Accordingly, it is believed that the

Board of Patent Appeals and Interferences and should reverse the Examiner's decision in each and every regard.

Dated: October 22, 2007

Respectfully submitted,

By 

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